



# MIAMI TOWNSHIP FIRE & EMS CLERMONT COUNTY, OHIO *MEDICAL PROTOCOLS*



## MANAGEMENT OF PATIENTS WITH NERVE AGENT / ORGANOPHOSPHATE OR BIOLOGICAL AGENT EXPOSURE

### Historical Findings

1. Large number of patients exhibiting signs and symptoms of nerve agent poisoning.
2. Circumstances provide no reason to suspect an industrial accident involving organophosphates (pesticides).
3. Known terrorist incident involving chemical or biological agents.

### Physical Findings

1. Over stimulation of muscarinic sites increases secretions. Two acronyms which help to identify the presence of increased secretions are:

S- Salivation	S- Salivation
L- Lacrimation	L- Lacrimation
U- Urination	U- Urination
D- Defecation	G- Gastrointestinal emptying
G- Gastrointestinal distress	B- Bradycardia; Bronchiol Constriction
E- Emesis	A- Abdominal effects
	M- Miosis (constricted pupils)
2. Over stimulation of the nicotinic sites causes severe muscle twitching, cramping, and weakness.
3. Release of or exposure to possible biological agent

### Differential Diagnosis

#### Chemical Agent

1. The effects caused by a mild vapor exposure, namely rhinorrhea and tightness in the chest, may easily be confused with an upper respiratory malady or allergy.



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2. Miosis (constricted pupils), if present, will help distinguish this as a nerve agent incident, but the eyes must be examined in a very dim light to detect this.
3. GI symptoms from an earlier illness may be confused with those from the nerve agent effects.
4. Exposure to organophosphates will produce the same signs and symptoms as exposure to nerve agents.
5. History is the best indicator of nerve agent exposure:
  - A. Large number of patients exhibiting signs and symptoms of nerve agent poisoning.
  - B. Circumstances provide no reason to suspect an industrial accident involving organophosphates (pesticides).
  - C. Known terrorist incident.

### **Biological Agent**

1. Known event involving the release of a possible biological agent.
2. Area Health Departments or agencies have reason to suspect a large number of people have been exposed to a biological agent and are in need of prophylactic antibiotic therapy.

### **Protocol**

### **General Guidelines for Chemical and Biological Incident**

1. Self-protection of the rescuers is the first priority. Do not rush in. Assess the situation. Be alert for secondary devices.
2. Remove patient from the toxic environment as quickly as possible. Emergency personnel should be dressed in the appropriate level of PPE.
3. Remove the patient's clothing and decontaminate the patient immediately.



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#### **Specific Guidelines Related to a Chemical Incident**

4. Assess and secure the patient's airway and provide oxygen per the airway, oxygen and ventilation protocol.
  5. If practical, maintain cardiac monitoring at all times.
  6. Initiate IV access with a saline lock or 0.9 % normal saline KVO.
  7. Medical management may include use of the following medications:
    - A. Atropine – May be administered IV, ET or IM. Medication may be administered using a Mark 1 autoinjector (NDC 6505-01-174-9919), or medication may be in the form of 0.1 mg/ml x 10ml prefilled syringe (NDC 0000747911) or 0.4 mg/ml x 20 ml single dose vial (NDC 63323-0234-20).
    - B. Pralidoxime Chloride (2-PAMCl) – May be administered IV or IM. Medication may be administered using a Mark 1 autoinjector (NDC 6505-01-174-9919), or medication may be in the form of a 1gram powder vial for injection (NDC 0046-0347-06).
    - C. Diazepam (Valium) – May be administered IV or IM. Medication may be administered using a 10 mg autoinjector (NDC 6505-01-274-0951), or medication may be in the form of a 5 mg/ml single dose vial (NDC 0000041933 or 10019-005-42 or 00641-0371-25).
- Since dosages needed may be higher than normally used, consult with on-line medical command for instructions.*
6. Transport patients to a facility capable of managing a nerve agent exposure. Although field decontamination should already have been accomplished, consult with the **receiving hospitals** concerning further decontamination procedures that will be performed at their facility.

#### **Specific Guidelines Related to a Biological Incident**

4. The need for distribution of antibiotics to the public will be determined by local health departments / agencies and use / distribution of these antibiotics will be performed only under the direction of Medical Control.



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5. Medical management may include the use of the following medications. Choice of medications and their concentration and form will be directed by Medical Control.
- A. Ciprofloxacin – May be administered orally or in some cases IV. Medication may be in the form of 500 mg tablets (NDC 00026-8513-51 or 00026-8513-48), 250 mg/ml x 100 ml bottle of oral suspension (NDC 00026-8551-36) or IV solution 400 mg in D5W 200 ml bag (NDC 8527-63/00026-8).
  - B. Doxycycline - May be administered orally or in some cases IV. Medication may be in the form of 100 mg tablets (NDC 00172-3626-70), 25 mg/5ml x 60 ml bottle of oral suspension (NDC 00069-0970-65) or 100 mg powder vial for IV use (NDC 63323-0130-10).
  - C. Erythromycin – May be in the form of 500 mg powder vial (NDC 00074-6365-02).
  - D. Gentamicin – May be in the form of a 40 mg/ml multi-dose vial (NDC 63323-0010-20).